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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/711,712

09/30/2004

Greg A. Hanlon

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EXAMINER

KALAFUT, STEPHEN J

ART UNIT

PAPER NUMBER

1795

MAIL DATE

DELIVERY MODE

11/08/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/711,712

Applicant(s)

HANLON, GREG A.

Examiner

Stephen J. Kalafut

Art Unit

1795

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-17 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-17 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 30 September 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date (3 dates).
- ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date: ____.
- ☐ Notice of Informal Patent Application
- ☐ Other: ____.

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 1, 2, 4, 7, 8, 11, 12, 14 and 17 are rejected under 35 U.S.C. 102(a) and (e) as being anticipated by Lee (US 2003/0203260), cited by applicant.

Lee discloses a polymer electrolyte fuel cell (paragraph 0023) having a bipolar plate (8) comprising a unitary plate (60) having first and second sides and first and second inlet and outlet ports (the six total manifold holes in figure 5), a plurality flow channels (60, 78a) on each of the two sides of the plate, where each of the flow channels has sections that run perpendicular and parallel to the longest dimension of the plate (figure 5), thus extending in different directions from each other. The flow channels connect an inlet header region (84) and an outlet header region (90), the header regions each comprising support surfaces (98) that support the MEA (4, 6) when the fuel cell is operating, and thus are able to withstand its pressure. Between the flow channels on each side, there are respective support ridges (64, 70). The plate may be made of metal such as titanium or stainless steel (paragraph 0030). Since these are the same materials as presently claimed, they would inherently be able to provide the same amount of support at the

operating pressure of the fuel cell. Recitations of how the plate was made, such as “etching”, are treated under product-by-process practice. See MPEP 2113 and the cases cited therein.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 5, 6 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee.

Lee does not disclose the relative widths of the support ridges and flow channels.

However, because the skilled artisan would be familiar with the functions of these parts, the support from the ridges and fluid throughput from the channels, determining optimal relative dimensions would be within the skill thereof. While Lee does not disclose zirconium as a plate material, he generally teaches that they are “electrically-conductive” (paragraph 0023). Thus, determining an appropriate conductive material would also be within the skill of the artisan.

Claims 3 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of either Marianowski (US 6,261,710) or Suzuki *et al.* (JP 2004-047,451), both cited by applicants.

Lee does not show outlet ports for each fluid passage being diagonally disposed with respect to the passage inlet port. This is shown by Marianowski (figure 4) and by Suzuki *et al.* (figures 3, 4 and 6-9). Because this would simplify the arrangement of the fuel cell stack by

placing each fluid manifold on the right or left, from whichever lateral end the stack is viewed, it would be obvious to connect the fluid flow passages of Lee to diagonally disposed inlet and outlet ports as shown by either Marianowski or Suzuki *et al.*

Claims 9, 10, 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lee in view of Boyer *et al.* (US 6,410,179).

These claims differ from Lee by reciting that at least one of the headers comprises an insert that has the support surface of the header. Boyer *et al.* disclose a fuel cell flow field plate with an insert (64) that includes parts (76) of the plate's support surface. Because this insert helps with the sealing of the plate (column 2, lines 20-28), it would be obvious to use the insert of Boyer *et al.* in the fuel cell plate of Lee. Determining an appropriate material for the insert would be within the skill of the artisan (column 5, lines 44-45).

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. A computer-generated English translation of Suzuki *et al.* is enclosed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Stephen J. Kalafut whose telephone number is 571-272-1286. The examiner can normally be reached on Mon-Fri 8:00 am-4:30 pm.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan can be reached on 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

sjk



STEPHEN KALAFUT
PRIMARY EXAMINER
GROUP 1700